

## ABSTRACT

Air conditioning system including a duct having a suction passage for drawing external air and a discharge passage for discharging room air, the suction passage and the discharge passage being split with a split plate, a suction fan and a discharge fan in the suction passage and the discharge passage, respectively, a dehumidifier having a desiccant wheel rotatably mounted in an opening in a split plate of the duct to cross, and exposed to the suction passage and the discharge passage, a regenerative heater in the discharge passage of the duct adjacent to air inlet of the dehumidifier for heating the air introduced into the dehumidifier, a regenerative heat exchanger mounted both in the suction passage and the discharge passage on a room side with reference to the dehumidifier for making heat exchange of the air flowing in the suction passage and the air flowing in the discharge passage, and a heat pump having a first heat exchanger in the discharge passage between the dehumidifier and the regenerative heat exchanger, and a second heat exchanger in the suction passage on the air outlet of the regenerative heat exchanger.